A PECCARY SKULL FROM THE BARSTOW MIOCENE, CALIFORNIA

BY CHESTER STOCK

BALCH GRADUATE SCHOOL OF THE GEOLOGICAL SCIENCES, CALIFORNIA INSTITUTE OF TECHNOLOGY *

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Introduction.—In November, 1936, a group of students from the Webb School, Claremont, California, visited the fossil beds of the Barstow Miocene under the leadership of Mr. Raymond M. Alf. On this occasion William Webb had the good fortune to find the remains of a peccary skull and jaw to be described in this paper. The specimens were generously presented to the California Institute.

It is a curious fact that peccaries of the Tertiary stage represented by the Barstow fauna are practically uuknown from the North American area. When J. C. Merriam published in 1919 the results of his comprehensive studies of the Tertiary faunas of the Mohave Desert,[1] the only specimen representing the peccary group available from the Barstow beds was an astragalus. The newly discovered material fortunately permits a much more satisfactory identification and furnishes the basis for an interesting comparison with the lower Miocene *Desmathyus* and the Pliocene *Prosthennops*. It is a pleasure to name this new type specifically for Mr. Childs Frick, who in recent years has conducted extensive paleontological explorations in the Barstow deposits.

Family Tayassuidae: Dyseohyus fricki, n. gen. and n. sp.

Type Specimen.—No. 2039, Calif. Inst. Coll. Vert. Pale., a fragmentary skull and lower jaw with $\underline{C}$, deciduous and permanent upper premolars, $\underline{M1}$ to $\underline{M3}$, and $\overline{P2}$–$\overline{P4}$, $\overline{M2}$ and $\overline{3}$ Plate 1.

Locality and Age.—Green Hills, west of Barstow, California, and locally NW of Saucer Butte near Rainbow Canyon. Upper Miocene.

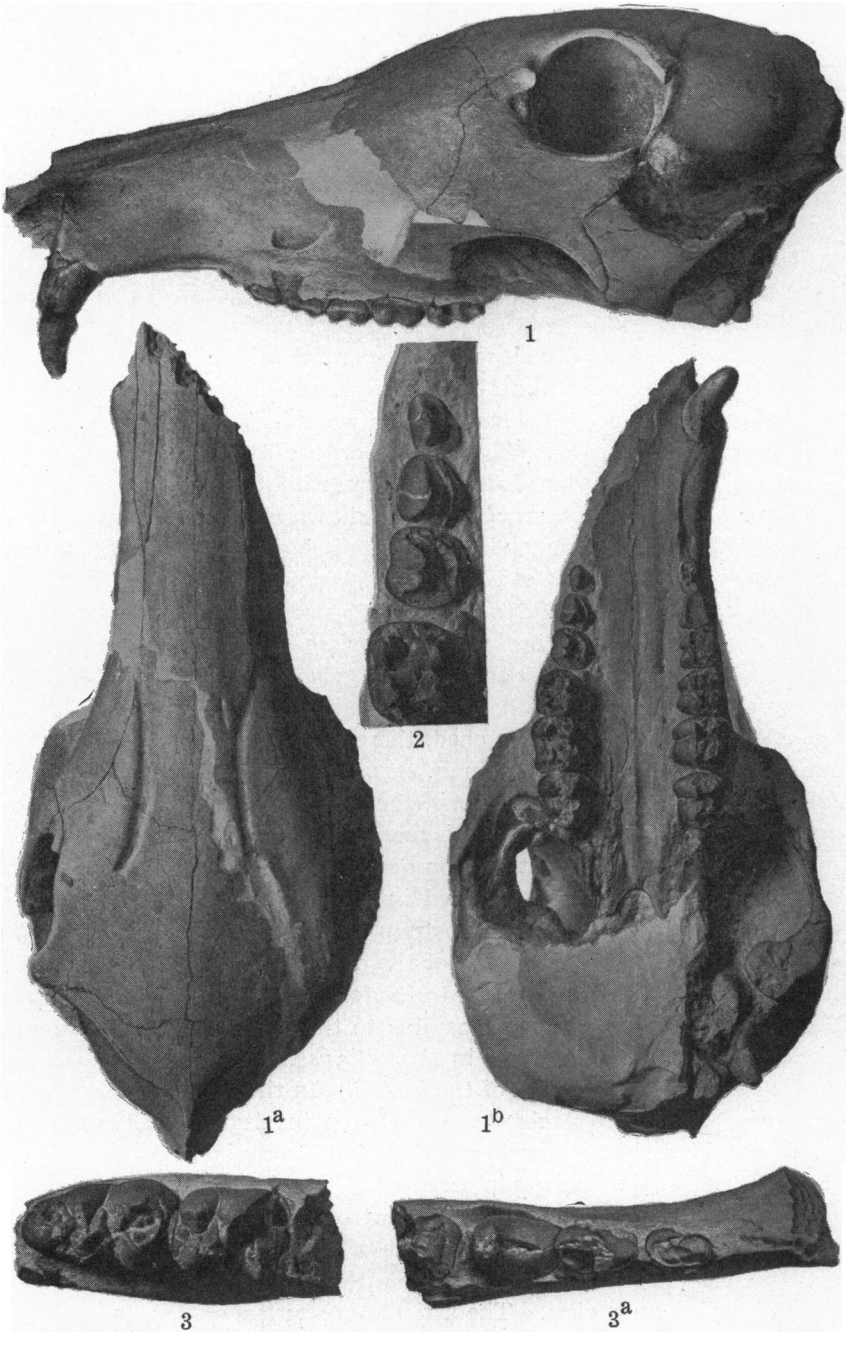
Generic and Specific Characters.—Rostral portion of skull slender and elongate; diastema between C and $\underline{P2}$ similar in length to length of premolar series $\underline{P2}$–$\underline{P4}$ inclusive. Orbit situated not so far back as in *Prosthennops crassigenis*, but farther back than in *Desmathyus siouxensis*. Cranial length (as measured from level of posterior ends of third molars to posterior side of occipital condyles) similar to length of cheek-tooth series $\underline{P2}$–$\underline{M3}$ inclusive. Palate extends behind $\overline{M3}$ for a distance slightly greater than length of third molar. Dentition $\frac{?}{?}, \frac{1}{1}, \frac{3}{3}, \frac{3}{3}$. In stage of acquisition of molar pattern, the premolars, particularly $P4$, are more advanced than in

Desmathyus, less so than in *Prosthennops*. Crowns of molar teeth with inner cuspules and crenulations better developed than in *Prosthennops*. Lower premolars narrower and less molariform than in *Prosthennops*, resembling in their characters the comparable teeth in *Desmathyus*. $P\underline{4}$ with shorter heel than in latter genus.

Description.—As judged by size and slenderness of skull, slenderness of canine and absence of pronounced development of canine buttress, No. 2039 represents a female individual. It is likewise not fully adult as shown particularly by presence of milk teeth. Unfortunately the anterior end of the skull has been weathered away so that the number of incisor teeth cannot be determined.

On the dorsal surface a sulcus curves forward from a supraorbital foramen on each side of the frontal and is continued along the dorso-lateral border of the rostrum. Posteriorly, the two sulci are more widely separated than in *D. siouxensis*. The ventral border of the infraorbital foramen is near the alveolar border of the maxillary, while the posterior border of the foramen lies in front of a vertical line drawn up from the anterior end of $M\underline{1}$. A lachrymal foramen is present and above it is a small lachrymal protuberance. The extent of the lachrymal bone on the face is distinctly less than in the skull of *Perchœrus*. The position of the orbit itself is farther forward than in *Prosthennops crassigenis*, but not so far forward as in *Perchœrus* and not quite so far as in *Desmathyus siouxensis*. Within the lower part of the orbit a horizontal swelling of the orbital wall can be seen. While the malar is shortened, there is no tendency to develop the large lateral protuberance seen in *P. crassigenis*. In comparing the type skulls of *D. fricki* and *P. crassigenis*, the latter difference is probably accentuated by the fact that the skulls represent animals of different sex and age. The shortening of that portion of the skull lying behind the tooth-rows, in relation to lengths measured in the region of the snout, can be expressed by utilizing the distance from the posterior level of the third upper molars to the posterior side of the occipital condyle. In No. 2039 this distance is roughly equivalent to the length of the cheek-tooth series, $P\underline{2}$–$M\underline{3}$. In *Perchœrus* it is comparable to the distance from $M\underline{3}$ to the anterior end of the canine, while in *Desmathyus* the same distance extends from $M\underline{3}$ to the posterior side of the canine. In the type of *Prosthennops crassigenis* this distance reaches from $M\underline{3}$ to a point situated well in advance of the premolar series yet considerably behind the canine.

Unfortunately, the basicranial portion of the skull in No. 2039 is not particularly well preserved. A small part of the auditory bulla remains which in cross-section shows no evidence of cancellous tissue. The inner end of the glenoid fossa is separated from the outer wall of the bulla by a deep and well defined cleft. The articulating surface of the fossa forms a shallow concavity. The paroccipital process is situated in back and


1
2
1a
1b
3
3a

slightly to the outer side of the outer wall of the bulla and in anteroposterior line with the inner end of the glenoid fossa. The shortness of the basis cranii is again shown by the close approximation of the process to the fossa. A stylo-mastoid foramen can be discerned at the antero-internal side of the paroccipital process.

The palate extends well beyond the posterior level of the third molars, in which respect No. 2039 differs from *Desmathyus* and is more like *Prosthennops*. In the type of *P. crassigenis*, however, the posterior extension of the palate reaches the level of the glenoid fossa and thus projects farther back than in *Dyseohyus*. The postpalatine foramina are on a level with the anterior ends of the first molars. A diastema of approximately 29 mm. separates the canine from $Dp\underline{2}$.

The canine is slender and more curved in its downward course than in the modern peccary.

$Dp\underline{2}$ was two-rooted, but the crown of this tooth is not preserved. $Dp\underline{3}$ is considerably worn so that the crown pattern is obliterated. This tooth is longer than wide and narrows slightly anteriorly. $Dp\underline{4}$, in which the crown is less worn than in $Dp\underline{3}$, resembles the anterior molar teeth in shape and in occlusal surface.

A removal of the deciduous cheek-teeth of the right side and of small portions of the maxillary exposed the crowns of the three posterior premolars. These teeth show marked difference from the comparable teeth in *Prosthennops* and also present a progressive advance beyond the tooth crowns seen in *Desmathyus*.

The crown of $P\underline{2}$ consists of a single cusp along the inner base of which extends a cingulum. The posterior half of the cingulum, however, is considerably enlarged to form a postero-internal crest or lobe.

$P\underline{3}$ likewise possesses a single cusp and an inner cingulum. Not only is the tooth larger than $P\underline{2}$, but the enlargement of the inner cingulum to form a pronounced crest extends in advance of the level of the summit of the principal cusp.

In $P\underline{4}$ the difference between the anteroposterior and transverse diameters is negligible. The tooth thus differs from $P\underline{4}$ in *Desmathyus* in which the crown is elongate transversely. On the outer half of the crown is situated the principal cusp which is twinned with another cusp of slightly smaller size. The summits of these cusps are placed well in from the slightly

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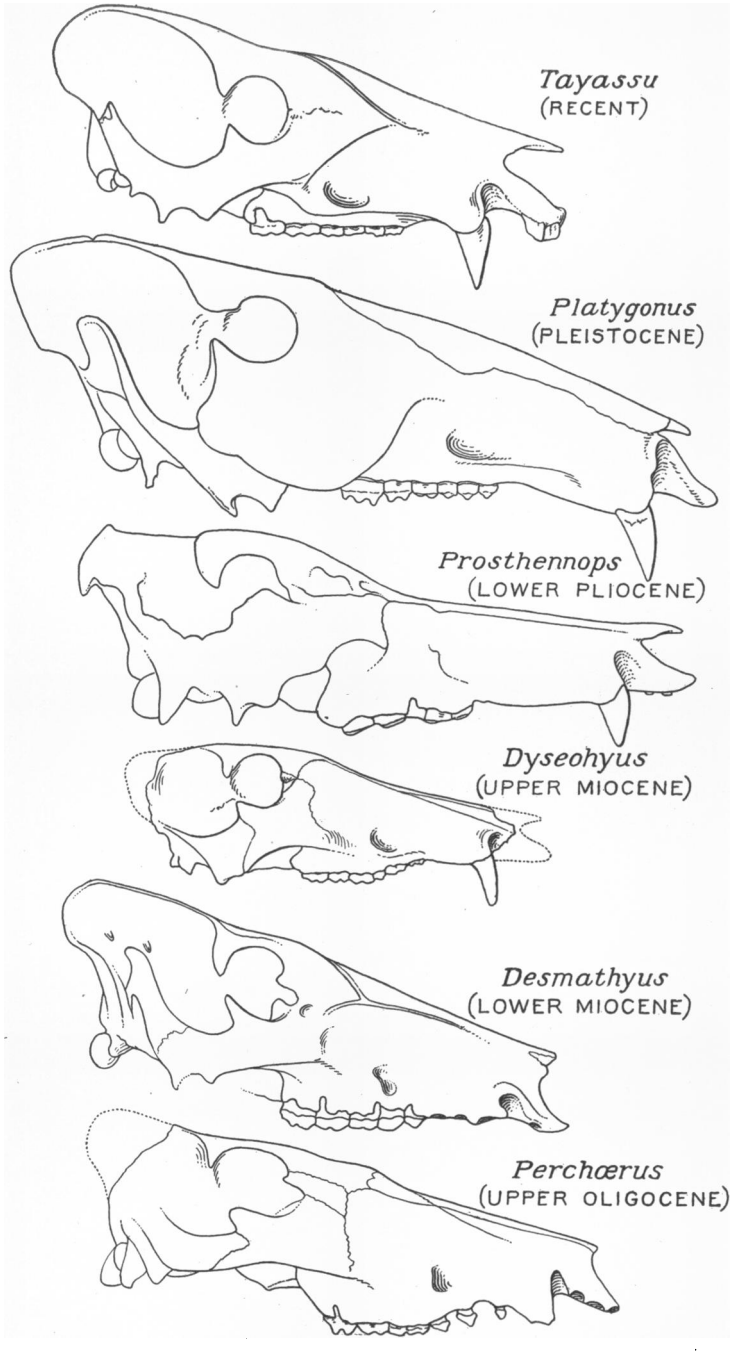
PLATE 1

Dyseohyus fricki, n. gen. and n. sp.

Figures 1, 1a, 1b, type specimen, skull, No. 2039 Calif. Inst. Tech. Coll. Vert. Pale.; lateral, dorsal and ventral views, approx. $\times$ $^3/_5$.

Figure 2, enlarged occlusal view of $P\underline{2}$–$M\underline{1}$, approx. $\times$ $^6/_5$.

Figures 3, 3a, parts of right ramus of No. 2039, with $P\underline{2}$–$M\underline{3}$, dorsal view, approx. $\times$ $^6/_5$. Barstow Upper Miocene, California.


Tayassu
(RECENT)
Platygonus
(PLEISTOCENE)
Prosthennops
(LOWER PLIOCENE)
Dyseohyus
(UPPER MIOCENE)
Desmathyus
(LOWER MIOCENE)
Perchœrus
(UPPER OLIGOCENE)

concave, outer edge of the crown. A well defined ledge or crest extends from the anterior side of the tooth around to and along the inner side. At its posterior end several crenulations of the enamel surface intervene between the inner shelf and the cingulum on the posterior side of the tooth.

The upper permanent premolars are therefore not so advanced in the acquisition of the molar pattern as are the comparable teeth in *Prosthennops*. For the sake of comparison the premolars in the genotypic species, *P. crassigenis*, are unfortunately well worn. However, both $P\underline{3}$ and $P\underline{4}$ appear to possess quadrate crowns and in allied species, referable to *Prosthennops*, the premolars have progressed distinctly farther in acquiring a molar pattern than have these teeth in *Dyseohyus*.

The molars are shorter crowned than in *Prosthennops* and cingulae are present on the anterior, outer and posterior sides of these teeth. Two pairs of cusps are present on each crown, but the individual cusps are not so distinct as in *Prosthennops*. Subsidiary crenulations of the enamel surface are particularly evident on the posterior half of $M\underline{3}$. The length of the last upper molar is practically equivalent to the transverse diameter of this tooth, in which respect *Dyseohyus* is more like *Desmathyus* and differs from *Prosthennops*.

The crowns of $P\bar{2}$ and $P\bar{3}$ are imperfectly preserved but appear to have been more simple in their construction than the comparable teeth in *Prosthennops*. In $P\bar{4}$ the two anterior cusps are closely appressed, not wide apart as in *Prosthennops*. The heel in this tooth is very short, shorter than in *Desmathyus*, and lacks the pair of cusps seen in the Pliocene peccary.

Although $M\bar{2}$ is not completely preserved, that portion of its crown which is present exhibits a transverse pair of cusps. On the median anteroposterior axis both in front and in back of this pair is a small cusp or fold. $M\bar{3}$ possesses two pairs of cusps and a heel. The enamel between the cusps shows numerous crenulations or a minor tuberculation and this character is seen likewise in the basin between the posterior pair of cusps and the crest of the heel. The length of $M\underline{3}$, when measured on $M\underline{2}$, reaches from the anterior end of that tooth to the crest of the heel.

LEGEND FOR TEXT FIGURE

Skulls of American Cenozoic peccaries; lateral views to same scale (approx. $\times$ $^2/_5$). Figure of *Perchœrus* reversed and after Pearson; figure of *Desmathyus* after Peterson; figure of *Dyseohyus* reversed; figure of *Prosthennops* after Gidley; figure of *Platygonus* reversed and after Gidley.

MEASUREMENTS (IN MILLIMETERS) OF PECCARY SKULL, NO. 2039

Length from anterior end of canine to middle of postnarial notch	123
Length from anterior end of canine to posterior face of occipital condyle	173
Greatest width across zygomatic arches	96
Least transverse width between orbits	64
Width of rostrum above posterior border of infraorbital foramina	43.8
Dorso-ventral diameter of orbit	30.2
Depth of jugal between orbit	21.6
Length, anterior end of canine to posterior end of *M3*	107.1
Length of diastema between canine and alveolus for *Dp2*	29.2
Length of cheek-tooth series, anterior end of alveolus for *Dp2* to posterior end of *M3*	65.5
Length of cheek-tooth series, anterior end of *P2* to posterior end of *M3*	65.3
Length of molar series	38.3
Canine, length	12.7
Canine, width	8.2
Dp2, length of alveolus	8
Dp3, length	10
Dp3, greatest width	7.1
Dp4, length	10
Dp4, greatest width	9.5
P2, length	7
P2, greatest width	5.8
P3, length	8.4
P3, width	8.2
P4, length	9.7
P4, width	9.6
M1, length	11.8
M1, width	11.8
M2, length	12.8
M2, width	14.5
M3, length	13.8
M3, width	13.7

* Contribution No. 230.

[1] I. C. Merriam, *Univ. Calif. Publ. Bull. Dept. Geol.*, **11**, 437a–585 (1919).